THE LEATHER INDUSTRY: A STUDY OF THE IMPACT OF POLLUTION CONTROL COSTS

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THE PRESIDENT'S COUNCIL ON ENVIRONMENTAL QUALITY, 722 JACKSON PLACE, WASHINGTON, D.C.

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VOLUME I
Executive Summary

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VOLUME 1: EXECUTIVE SUMMARY

SUBMITTED BY:

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DECEMBER 1971

PREPARED FOR:

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722 JACKSON PLACE, N.W.
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December 1, 1971

Mr. Eric Zausner
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

Dear Mr. Zausner:

Attached is Urban Systems' final report on our Study of the Impact of Pollution Control Costs on the Tanning Industry.

The report is divided into three volumes entitled: The Executive Summary, The Industry Description, and The Impact of Pollution Control Costs on the Tanning Industry.

We were very pleased to be able to undertake this study and hope that it will contribute to an understanding of the impact of waste control on the tanning industry and the implications of pollution control policies and regulations for the industry.

Best regards,

Richard Williams

Richard Williams

RW:jak

Acknowledgements

This report reflects the efforts of many individuals and the cooperation of an even larger number of tanners, shoe manufacturers, bankers, and others.

I want to particularly thank Peter Reuter and Charles Zigonis for bringing together much of the data and contributing large portions of the final report.

The most tedious data collecting, particularly the industry listing, was completed by a team at Lowell Technology Research Foundation, coordinated by William Plouffe. Carol McDonough was of particular assistance. Special acknowledgement must go to Mel Battles and Tom Thorstensen for their special insight into the tanning industry.

Unfortunately the individual tanners who were most helpful must go nameless because of the confidentiality of the information they provided. Dr. Culver of Camp, Dresser, and McKee was specially helpful in defining the technologies and costs of treating waste from tanneries.

I want to also thank Dr. Mel Fuss and Dr. Marc Roberts for reviewing the study and providing numerous helpful suggestions.

Of course a special thanks must go to Hoff Stauffer of the Environmental Protection Agency's staff for his guidance and encouragement. One sometimes gets the impression that government contract managers just spend their time waiting for reports to come in. Hoff Stauffer's long hours on the job made our long hours more bearable.

Richard Williams

Volume 1

TABLE OF CONTENTS

		Page
1.0	Introduction	1
2.0	Description of the Tanning Industry	5
3.0	Pollution Control Costs in the Tanning Industry	12
4.0	Impact of Control Costs	17

1. Introduction

1.0 Introduction

This report summarizes a review made in October and November, 1971, of the impact of pollution control costs on the leather tanning and finishing industry (SIC 3111) in the United States.

Recent trends in production, employment, and product acceptability have been reviewed along with current and planned pollution control expenditures. Executives of eighteen of the firms were interviewed for an impressionistic description of trends in the industry and their expectations as to the impact of pollution control costs.

The Executive Summary presents an overview of the total study highlighting the industry trends and the relative importance of pollution control costs to the future of the industry.

The essential conclusions of this study are first that the cost of controlling the industry's water pollution at least to the level of secondary treatment will represent an additional cost of production equal to one percent or less of annual sales for most of the firms in the industry. A small number of firms could

face costs of 3 percent though no such firms were found.

The second conclusion follows from the industry's frequent experiences with large increases and decreases in the cost of its basic raw material-hides-by as much as 50 percent to 100 percent in a one to two year period. The selling price of leather correspondingly has changed from ten percent to 25 percent in the same period with no apparent affect on production. In the aggregate the industry would not have any difficulty passing on a one percent or even three percent price increase deriving from pollution control costs.

The third major conclusion is that the future of the industry will be determined by the health of the American shoe industry, not by pollution control costs even though the industry is a major pollutor. In the last three years, domestic shoe production has begun to decline due to competition from imports and thus leather production has also begun to decline. There is also strong pressure toward the substitution of synthetics for leather which has ended most leather sole usages and made large inroads in lower priced shoes. The future

trends are very hard to predict.

The fourth and final conclusion regards the ability of individual firms to raise the necessary capital to pay for control equipment and to pay financing and operating costs. Financial information is very difficult to obtain for leather firms because they are almost exclusively privately owned. Reviewing the financial data which was obtained one would have to conclude that the average firm could absorb a one percent yearly charge for pollution control. Most companies interviewed did not seem very concerned--probably because of their confidence in their ability to increase prices to cover the costs. The ability of the firms to raise large amounts of capital is not evident from their financial statement. They have very little convertible plant and equipment and there is little convertibility in the pollution control equipment which may need to be purchased. However the industries' current ratios average around two. There is also strong evidence that the owners of the firms hold assets related to the tannery which are not shown on the tanneries accounts. The owners interviewed

were completely confident that they could either raise the capital required from banks or they were willing to put up the capital themselves. Thus marginal firms have been closing and will continue to close. But this phenomena results from a contracting market for leather not from the inability of firms to live with pollution control costs.

In the worst case where a firm is facing severe control costs, tanneries now have the option of closing what is called their "beam house" and subcontracting the preliminary tanning operations and thus eliminating 90 percent of the BOD waste. Companies now provide this service at a cost equal to what it costs the average firm to perform the work in house. The employment reduction is about 20 percent. This option has been taken by a number of firms. Thus only in very unusual circumstances might a tannery actually have to close because of pollution control costs.

2. Description of Tanning Industry

The tanning industry is one of the oldest manufacturing industries in the United States. It has declined secularly since the turn of the century, a decline temporarily arrested in the mid 60's. The number of plants has declined by about 25 since 1967 to 496 in 1970 with half of the firms employing less than 20 persons.

The industry is characterized as technically stagnant, small scale and highly price competitive. No new tannery has been constructed in fifteen years and the average age of machinery is close to 25 years. Even the class of firms with more than 20 employees average only 100 employees, with the four firm concentration of about ten percent.

Price competitiveness is very much fostered by the industry's prime customer, the shoe industry, which purchases 80 percent of the leather produced. Shoe manufacturers use a number of suppliers of any one time, with little concern for ties of tradition or region.

There are only a few publicly owned companies in the industry. About 25 plants are divisions of non

tanning corporations, but the vast bulk of the companies are privately held, with family ownership-management. This has important consequences for decision making in the industry. Management which has owned a company for many years has a psychological stake in the continued existence of the company which often leads to decisions not consistent with pure profit maximizing behavior. Both because of the firm sizes and their ownership, the tanning industry has invested very little in research and development and is secretive about technology and trends

Tanneries have traditionally been regarded as major pollutors. The basic process is chemical treatment of hides, which produces substantial liquid effluent. Air pollution is a much smaller problem, though not negligible. Most air pollution expenditures have involved purchases of new boilers though there is some buffing waste control equipment.

Certain parts of the tanning and finishing process are responsible for a disproportionate part of the effluent production. In particular the "beam house" operations, defleshing and tanning, produce the

bulk of BOD, though they involve only a small part of the value added of the industry. It is perfectly feasible for a tannery to continue operations using hides processed elsewhere, where effluent treatment costs are lower, rather than starting with the raw hides. There is in fact a noticeable trend towards this separation, so that in the future there may be a number of firms in hide producing regions which specialize in beam house operations and ship the much lighter hides to finishing firms in the North and East.

The basic raw materials for leather production are animal hides, predominantly cattle. Every animal commercially slaughtered in the United States provides a hide for tanning, though hide production is only a function of meat demand. The United States is a major exporter of cattle hides, along with Argentina. Hide purchases represent about 30 percent of the production costs of United States' leather.

Hide prices have been characterized by an extraordinary variability rising as much as 46 percent in a single year for which no obvious explanation is available. Aggregate supply and demand do not seem to have been particularly volatile, even within years.

Tanners, despite large inventories, do not stock pile for speculative purposes, inventories being perceived as determined by essentially technical needs. Clearly there must be highly volatile price expectations which lead to variable bidding. Prices are set by auction and no big buyers exert significant influence.

The shoe industry takes 80 percent, by value, of the tanning industry's output. Being a very low capital intensive industry with a small optimal size, there is a very high rate of corporate birth and death amongst shoe firms. The industry has been seriously affected by the sudden increase in the market share of imports, with the number of establishments declining from 1100 in 1968 to 950 in 1970.

In reaction to this change, the domestic shoe industry has shown increasing interest in the use of synthetics. The potential reduction in production costs come from both a lower price and more automated output processes, such as machine molding. The latter component represents the more important factor for the domestic leather industry, since synthetics of a quality comparable to leather, at the moment, cost

approximately the same, per square foot, as leather. The leather industry's long run future is heavily dependent on technological changes in leather shoe production and the level of domestic shoe production.

The other traditional customer for the leather industry has been the garment industry. Here fashion changes are the most crucial variable and cost or technical factors are unlikely to be significant. The industry is well aware of this and has attempted to promote an image of quality for leather clothes. Some success, though possibly temporary, has been achieved.

One consequence of the predominance of closely held firms in the leather industry is a lack of financial information on individual firms. Census data are aggregative and available only for scattered years. Nevertheless, through the use of an analysis of financial statement by Robert Morris Associates, Dunand Bradstreet reports, and interviews with tanning executives, we have developed a fairly clear picture of the industry's financial position.

The largest item appearing in the capital balance

sheet is inventories ($135 million), together with bank loans to cover them. There is only $200 million in plant and equipment at market prices reflecting the very old age of equipment. On the other hand, there is an adequate ratio of current assets to current liabilities, averaging about two but rising as high as 4.9 for one company with 275 employees. One can infer that there are funds available for investment or credit available for loans for waste treatment facilities. The inference is clearly reflected by the statement of tanners that they have been meeting and will continue to meet pollution control costs.

It would seem, in fact, that capital is used very poorly in this industry. Substantial funds are tied up in low yield short term assets or self-financing of inventories. This again reflects the nature of control in the industry; family ownership-management with no interest in diversification of assets.

The Morris Associates study showed that the financially weakest firms were the small firms in the lowest quartile of financial strength. These firms are also the ones with the oldest technologies and

are the ones most likely to close in a contracting market.

3.0 Pollution Control Costs in the Tanning Industry

This study has taken a different approach to the control cost aspect than originally planned. Considerable effort has been devoted to obtaining actual cost data because it turns out that the costs vary widely within the industry and is at times at great variance with the cost data supplied by EPA. In addition, the important differential impact of the costs is between firms within the industry and not between the tanning industry and other industries or imports. As a whole there is almost a zero elasticity of demand for leather. Therefore, the important question is what happens within the industry, and the study of cost data focused on this aspect. It seems clear that the industry as a whole can pass on the two to three percent price increase which would result in the worst case from pollution control costs.

Present state and federal water pollution control programs and regulations have significant differential impact on the firms within the tanning industry. Firms in Milwaukee, Newark, Peabody and Salem, Mass., and Gloversville-Johnston, New York, for example are now paying little or no direct sewer charges and there are

currently no plans to impose any charges. These firms, which make up a large percentage of the tanning industry, will probably experience little or no increased cost of production due to pollution control costs in the next two or three years.

Firms in Chicago have experienced relatively heavy charges because of new sewer regulations which require pretreatment and charge firms in proportion to their waste flow and its composition. The typical costs for these firms for waste control is somewhat over one percent of sales.

There are a smaller but important number of firms which are in small towns and are required to put up joint town-tannery treatment plants. These firms have had to raise large amounts of capital as their share of the construction costs. A New Hampshire company with annual sales of $10,000,000 contributed $700,000 toward the cost of constructing the treatment plant. The annual added cost of production for these firms including operation costs and debt maintenance is approximately one percent of yearly sales. These joint projects are all receiving state and federal financing for 80 to 85 percent of the construction

costs. In a study done by Camp, Dresser and McKee[1] of one of the joint projects, the cost to the tannery without state and federal capital assistance would be about three percent of sales.

The final group of firms consists of those in rural areas where they cannot tie into a muncipal treatment system. While it may seem that these firms face the most severe control costs because they can receive no public funds for constructing treatment facilities, interviews with 20 percent of the firms showed this not to be the case. All of the firms interviewed were undertaking much less expensive treatment projects using large amounts of land area. The companies reported that they were achieving secondary treatment with these methods.

It is difficult to generalize for these firms because each one is a special case, but it seems they are now experiencing less cost impact than the firms in municipal systems like Chicago. As noted above the cost of building and operating a treatment plant

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[1] Activated Sludge Treatment of Chrome Tannery Wastes, U. S. Department of the Interior, Water Pollution Control Research Series, ORD-5.

similar to those built for municipalities would be three percent of sales.

Upon reviewing the present pattern of pollution control costs on the tanning industry, it becomes clear that the present federal and state enforcement and particularly the treatment plant grant programs benefit some firms and not others. The costs for different classes of firms sighted above are expressed as a percentage of annual sales. The firms in municipalities and joint projects are only being charged to recover 20 percent of the capital costs, if that much. The maximum annual charges for these firms is one percent of annual sales instead of three percent. The difference is the federal and state subsidy of construction costs which rural firms do not get.

In terms of whether a firm continues in business or not, it is equally important whether the firm must finance the treatment facilities or merely pay off its share of municipal bonds. Rural tanneries and those in joint projects are having to raise the largest amounts of their own capital.

As far as the tanning industry is concerned present federal regulations would continue to differentially

impact firms in the industry. The proposed Federal Water Pollution Control Act of 1971 would at least eliminate the disparity resulting from the federal subsidies of capital costs.

All of the costs discussed so far have concerned water pollution control because this is the major problem for the industry. Some data is reported on air pollution but this mostly represents the cost of replacing coal burners in furnaces. Tanning includes polishing and buffing and there are some odor problems, but these are all small compared to the water pollution problems.

4. Impact of Control Costs

The impact of pollution control costs on the tanning industry can be summarized very briefly because the effects are minimal. This is not to say that the costs are not a major concern to the industry or that the period of adjustment will be easy. Tanneries which are attempting to define and control their waste problems for the first time are experiencing a period of major expenditures and a major problem solving period which is taking up a considerable amount of the firms' management time. But for almost all tanneries pollution can be controlled within manageable expenditure levels.

In the aggregate pollution control costs will equal about one percent of yearly sales. These costs will easily be passed on by the industry as a whole. The one percent cost number is taken from the actual cost experience of many tanneries ranging from .5 percent to 1.5 percent. It must be understood that these costs reflected the state and federal capital subsidy program for treatment plant construction. Without this program the one percent cost number would go to about

three percent.

It is possible that some plants could face a three percent cost now. But no such plants have been identified. Firms have closed down their beam house to keep the costs more in line with the one percent figure.

In total the control costs will result in higher leather prices of about one percent and the differential between firms will range from zero percent to 1.5 percent. In time these differences will diminish as municipalities institute sewer charge schemes more nearly reflecting the cost of treating industrial waste.

There will be no aggregate effects on employment or production as a result of waste control costs. The closing of "beam houses" will redistribute employment somewhat but should allow the affected tanneries to stay open with a ten percent to 15 percent employment reduction rather than closing. No specific plants were identified which were likely to close as a result of control costs. The most vulnerable types of plants are small firms with older technologies particularly vegetable tanners or those producing sole leather.

But none of these would have significant impact on local unemployment rates.

Because tanneries are price competitive, some firms may have to temporarily absorb part or all of the one percent waste control cost since their competition may not face the costs at the same time. The before tax profit margins for tanneries are about 5.5 percent according to the Morris Associate study. The one to one and a half control cost could be absorbed for a short period such as six months before prices were increased. It is relatively easy to pass on the cost because leather prices regularly change substantially as a result of hide price changes.

The essential attitude of tanners is that what ever expenditures are necessary to keep the plants open will be made. The managers and owners who had not already faced large waste control costs did not seem to know what expenditures they would have to make. Their estimates were usually higher than the actual costs reported here. But there was almost a universal confidence that the necessary capital could be raised and the yearly costs could be lived with.